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ABSTRACT OF THE DISCLOSURE

A plasma processing apparatus comprising a plurality of plasma processing units is provided. Each of the plasma processing units has a matching circuit connected between a radiofrequency generator and a plasma excitation electrode. Among these plasma processing units, a variation $\langle RA \rangle$ between the maximum and minimum values of input-terminal-side AC resistances RA of the matching circuits defined by $\langle RA \rangle = (RA_{\max} - RA_{\min}) / (RA_{\max} + RA_{\min})$ is adjusted to be less than 0.5. A variation between the maximum and minimum values of output-terminal-side AC resistances RB of the matching circuits defined by $\langle RB \rangle = (RB_{\max} - RB_{\min}) / (RB_{\max} + RB_{\min})$ is also adjusted to be less than 0.5. The plasma processing units can be adjusted to achieve substantially uniform plasma results in a shorter period of time.